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A CASE OF LEUCOCYTHÆMIA; SUDDEN AND MARKED DIMINUTION IN SIZE OF THE SPLEEN.[1]

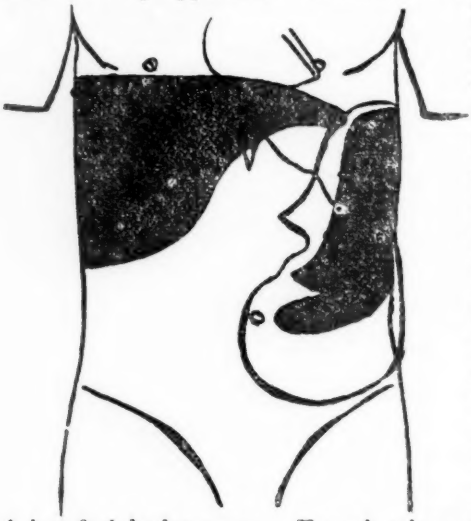
BY F. GORDON MORRILL, M. D.

J. H., twenty-five years of age, pressman in a linseed-oil factory, entered the Carney Hospital, October 5, 1875, with the following history: indulges freely in stimulants, but has always enjoyed good health until December, 1874, when he noticed a shortness of breath, slight cough, malaise in the epigastrium, and intermittent pains in the head and spine. A month later he had nausea and a spasmodic cough after eating. These attacks ended in vomiting a greenish fluid, after which both cough and nausea ceased. At this time he began to lose flesh, strength, and color. Soon his appetite failed, and continues poor at the present time. In April, 1875, he perceived that his abdomen was swelled. Three weeks later there was œdema of the feet and ankles. In May, 1875, he entered the Massachusetts General Hospital, where an enlargement of his spleen was discovered. He felt slightly relieved when he returned to his home in Chelsea. In July, 1875, he "had a chill almost every day at one o'clock;" also profuse night sweats and occasional attacks of epistaxis, to both of which symptoms he is still subject. In the August following, a severe attack of dysentery confined him to his bed during a period of three weeks. Two weeks previous to entering the hospital he suddenly became "entirely deaf" in the right ear. This condition lasted two or three days, when he partially regained the power of hearing as suddenly as he had lost it. A few days later the same symptom appeared on the opposite side, and still remains present. He is sure that he has lost forty pounds of flesh since the commencement of his illness.

October 7, 1875. His present condition is as follows: pallor very marked, — the mucous membranes of the lips presenting an almost bloodless aspect. Staggers when he attempts to walk, and is obliged to catch hold of the furniture of the ward to prevent falling; states that this symptom is partly caused by vertigo and partly by weakness. Tongue clean and pale. Pulse, 80, soft and regular. Bowels usually constipated, but he is subject to attacks of diarrhœa. On examination a

[1] Read before the Boston Society for Medical Observation, March 19, 1877.

tumor is very apparent, the outlines of which will be readily understood



by reference to the diagram. It is of firm consistency, dull on percussion, and is evidently the enlarged spleen, its hilus being plainly felt. Its edge, particularly of the portion extending from the costal cartilages towards and past the median line, can be readily grasped. It is very slightly sensitive, but firm pressure causes pain. The only enlarged glands to be found are a few small nodules in the right groin, and a well-marked swelling over the inner condyle of right humerus. Examination of the lungs reveals nothing abnormal except dullness and absence of respiration over that portion of the left side which is encroached upon by the spleen. This extends in front from the upper border of the sixth rib, downwards; and behind from the eighth rib to the base of the lung. The apex of the heart is displaced, and its beat is felt in the fourth intercostal space, just beneath the nipple, which in this instance is situated directly over the fourth rib. The first sound is prolonged, and accompanied by a soft systolic murmur, which is transmitted towards the axilla. The aortic and pulmonary sounds are heard in their normal situations, the latter being distinctly accentuated. The area of hepatic dullness is increased and is merged into that of the heart and spleen on the left, as seen in the diagram. There is some œdema of the feet and ankles. The urine contains no albumen, and deposited a copious sediment (amorphous urates) on standing. Has never had syphilis, and there is no family history which sheds any light on present trouble. Iodide of potassium was prescribed in ten-grain doses, thrice daily.

October 14th. Dr. E. G. Cutler, pathologist to the hospital, presented the following report of the blood: —

Relative proportion of white corpuscles, 1: 1.+ red. The red vary in size from 5 to 10 micro-millimeters, and the white from 6 to 13 micro-millimeters, — the white being of three distinct sizes: size of ordinary red corpuscle normal, and abnormally large. Some contain a single nucleus; others two or three. Both white and red are of normal shape, but the red are lacking in color. Occasionally transient forms are seen, namely, pale red corpuscles with well marked nuclei. A few microcytes are occasionally seen.

October 15th. Diarrhœa. Iodide omitted. Astringents prescribed.

October 21st. Diarrhœa ceased yesterday. Blood, white 1 : 4 red. Tr. ferri chlorid. in twenty-minim doses ordered.

October 25th. Decidedly better. Appetite good. Hearing of left ear somewhat improved; that of right "as good as ever." Blood, white 1 : 2.9 red.

November 6th. Walks about the wards without support. Œdema has nearly disappeared. Iron omitted. Phosphorus gr. $\frac{1}{48}$, thrice daily.

November 16th. Blood, white 1 : 2.6 red.

November 18th. Phosphorus omitted on account of gastric disturbance. To resume muriated tincture.

March 4, 1876. Blood, white 1 : 3.7 red. Later in the month a severe peritonitis confined the patient to his bed, and he was in a critical state for two weeks. As soon as he recovered, the iron was continued until the middle of April, when all medicine was omitted.

May 16th. Blood, white 1 : 3.7 red. Œdema completely gone.

June 29th. Blood, white 1 : 3.1 red. Patient comfortable and appetite good.

July 1st. Liq. potass. arsenitis gtt. v., thrice daily. This was continued until July 31st. During the last five days of the month a dysentery existed which became so severe as to preclude the further use of arsenic.

August 2d. Blood, white 1 : 6.7 red.

September 1st. The patient has recovered from his dysentery, but has had severe chills during past three days, for which quinine has been given. To-day is much better; the quinine is to be continued.

September 3d. Blood, white 1 : 4.4 red.

October 1st. Blood, white 1 : 2.9 red. Quinine omitted and bicarbonate of soda ordered in ʒi doses, thrice daily.

October 8th. Blood, white 1 : 2.9 red. Swellings like wheals on buttocks.

October 15th. Blood, white 1 : 2.4 red. Glandular swellings in left groin, and over saphenous opening.

October 22d. Blood, white 1 : 2.1 red. Omit soda. Five grains of ergotin injected into cellular tissue over spleen. At the same time tr. ferri chlo. ordered in twenty-minim doses. The ergotin was injected on alternate days until the 28th, when there was so much tenderness over the spleen that the arm was used, and the ergotin continued until

November 2d. Temperature, 101° F. Pulse, 90. Complains of headache, nausea, and weakness. There is evidently peritonitis in region over spleen, but no change in size or consistency of the tumor.

October 29th. Examination of the blood showed white 1 : 2.4 red.

November 12th. Iron continued since last entry. Loose discharges. Omit iron.

November 14th. Blood, white 1 : 3.1 red. Iodide of potassium ordered, ʒss. thrice daily, and unguent hydrarg. rubbed in over seat of tumor. Complains of obstinate and prolonged priapism, which prevents his sleeping.

December 10th. Blood, white 1 : 2.3 red. Iodide omitted, and gr. $\frac{1}{6}$ of iodine ordered, thrice daily. The mercurial inunction to be continued.

December 12th. No change in any respect.

December 15th. Severe diarrhœa during past forty-eight hours. "Felt something give way in his left side day before yesterday," and has noticed that his discharges have been "full of matter." This morning the diarrhœa abruptly ceased. On examination a decided reduction in the size of the tumor was noticed, as seen in the diagram. Unfortunately there was no opportunity to examine the stools.

December 18th. Blood, white 1 : 2.6 red. Patient comfortable; continue iodine.

December 25th. Urine examined and albumen discovered; also casts, some of which showed evidence of fatty degeneration.

January 1st. No change in tumor since 15th; all medicine omitted.

January 5th. Some epistaxis requiring plugging posterior nares. Shortly after this Dr. C. J. Blake kindly examined the man at my request, and his report about his hearing is as follows : —

External auditory canals normal. Right membrana tympani slightly concave, and opaque in consequence of thickening of the mucous coat; the manubrial plexus congested. Left membrana tympani presents the same appearance, but less congestion of manubrial plexus. Eustachian tubes patent. Hearing distance : watch, right $\frac{21}{180}$; left 0. Watch heard when pressed on right temple, but not on left. Tuning fork between teeth heard in right ear. Tuning fork externally : right, all tones; left, fifth only. After air douche : right, $\frac{21}{180}$; left, 0 as before. In a letter recently received by Dr. Blake, Professor Moos of Heidelberg states that he has seen but one case of leucocythæmia in which the hearing was affected, and knows of nothing in the literature of the subject which explains the cause.

March 4th. Diarrhœa last week; appetite not so good as usual. Size of tumor the same as when the reduction was first noticed. Some enlarged cervical glands on both sides. The area of hepatic dullness has not changed since the patient first came under observation.

March 10th. The following report of the urine received from Dr. E. S. Wood : Color, pale; reaction, acid. Sp. gr. 1017. Urophæin +; indican normal. Urea normal; uric acid greatly in excess. No sugar; a trace of albumen; no bile pigments; chlorides normal; sulphates earthy, and alkaline phosphates slightly deficient.

Sediment : uric acid crystals and amorphous urates. Hyaline, granular, and a few fatty casts. A few renal epithelial cells.

Amount of urine for 24 hours		1653 cub. cent.	
"	urea	37.94	grammes.
"	P^2O^5	1.38	"
"	Cl	10.22	"
"	uric acid	1.22	"
"	indican	.0186	

Uric acid : urea = 1 : 31.

Some of the symptoms present in this case seem worthy of attention. The report of the condition of the blood is very accurate, the figures given being the average obtained from ten separate examinations made by Dr. Cutler on each particular date. At no time has the relative proportion of white corpuscles been so large as when the patient first came under observation (white 1 : 1.+ red). It will be noticed that it was smallest August 2, 1876 (white 1 : 6.7 red). This corresponded to the period when arsenic had been omitted forty-eight hours, and the dysentery had existed one week. It is difficult to say with any degree of certainty to what this apparent improvement was due, but the fact that a marked change (from white 1 : 1.+ red to white 1 : 4 red) was noticed in October, 1875, after a diarrhœa lasting only five days, leads me to attribute it to the draining away of serum by the bowels, it being probable that the red corpuscles flow more freely than the white from a prick or wound of any kind, when from any cause the amount of the liquor sanguinis is diminished. The change too, which took place during the five days following the cessation of the diarrhœa (from white 1 : 4 red to white 1 : 2.9 red) would seem slightly to favor this theory. By referring to the record of the blood we see that the relative proportion of the white cells may vary when the disease is left entirely to itself; but at no time has there been so marked a change as those noted as following the dysentery and diarrhœa. The change which followed the sudden diminution of the splenic tumor was not worth noticing. No diminution of the ratio of the white corpuscles followed the administration of bicarbonate of soda. This would seem to disprove (so far as leucocythæmia is concerned) the opinion resulting from the experiments of Mons. Pupier, who found that the use of alkalies increased the number of red corpuscles in the blood of man and the lower animals, and so reported to the French Academy of Sciences last year. The duration of the disease in this case and the patient's present condition form a marked exception to the general rule.

The average duration in thirty cases of the splenic and glandular forms of leucocythæmia which I have collected was eighteen months. According to Hardy and Labarraque[1] the average duration of all forms is sixteen and a half months. When merely a few superficial glands are affected, a long time may elapse before any serious trouble results.

The symptoms so generally observed in cases of leucocythæmia (di-

[1] Nouveau Dictionnaire de Medecine, Paris, 1875.

arrhœa, dyspnœa, epistaxis, etc.), are readily accounted for if we choose to accept what appears to be a rational theory of the pathology of the disease. Concisely stated, this is (according to Hardy and Labarraque) a deposit of lymphadenoid tissue and cells in parts not naturally containing them, and their increased proliferation in parts where they are normally present. As a sequence there is imperfect performance of functions in the organs or tissues where such changes exist, an increase of the white cellular elements of the blood, and engorgements of portions of the capillary circulation, with perhaps rupture and hæmorrhage. The wheal-like swelling, recorded as present on October 8, 1876, would be accounted for by the presence of masses of white cells which had escaped from the ruptured capillaries. The obstinate priapism which has been observed in several instances is thought to be caused by rupture of the vessels of the corpora cavernosa, or by a thrombus in the veins of the bulb. The theory that it is caused by a deposit of white cells in the lower part of the spinal cord is now considered untenable.

By far the most remarkable symptom is the sudden diminution in size of the spleen. I doubt if this had any connection with the treatment of the case. The question which arises is, Was the fluid which escaped by the bowels (for no other explanation of the sudden diminution of the tumor seems at all reasonable) really a portion of the contents of the spleen itself, or was it the result of a localized peritonitis or of an abscess which had burrowed from the spleen and become encysted? If either of the latter, then a collection of pus (or leucocytes) must have existed, external to the spleen, from the time when I first saw the patient, and its situation was too deep for fluctuation to be detected. I do not know that I am at all justified in speaking of the collection of fluid which escaped (as I believe) from the spleen itself as an "abscess." That it softened and broke down to such an extent as to lead to its discharge, by means of an inflammatory process, I am by no means sure, nor could this point have been settled even if the discharges had been examined, there being no means that I know of by which a difference between pus and a collection of leucocytes can be demonstrated. Abscesses of the spleen form independently of leucocythæmia, and make their way in almost any direction. There is no reason that they may not exist, too, as a complication of the disease. Of one thing I feel sure, and that is that a portion of the contents of the spleen escaped by the intestines, and that the reduction in the tumor was caused thereby. Under these circumstances it would not be reasonable to expect any improvement in the condition of the blood. Had an abscess of the spleen been the only morbid change present, the proportion of white corpuscles would have decreased rapidly after its evacuation. In a case recently reported in the *London Lancet*, a diagnosis of leucocythæmia was made, when the unsuspected presence of pus was

the sole cause of the large number of white corpuscles (130 in a single field), and the number rapidly diminished as soon as the abscess was aspirated. M. Henri Browne, in a thesis published last year, cites a case of iliac abscess in which the white were to the red as 1 : 18. After its evacuation the ratio was 1 : 130. The same phenomenon has been observed in all diseases attended with suppuration. The presence of fatty casts in the urine is of course of serious import. This association of Bright's disease and leucocythæmia is exceedingly rare. That the amount of urea should be normal when the number of red globules was so much less than normal (the patient meanwhile leading a very sedentary life, and showing no special predilection for nitrogenous food), is very remarkable, and I can offer no explanation of the fact.

The treatment has been necessarily empirical, and after a somewhat careful investigation of the cases where benefit is alleged to have been obtained from the remedies which were employed in this particular instance, I believe that one or two of them are useless if not positively injurious in leucocythæmia. The following are all the cases which I have been able to find where improvement has been claimed to have been due to the use of phosphorus: —

Case I.[1] A boy of sixteen, with marked enlargement of the spleen, and in whose blood the white cells were "in undue proportion, but did not predominate to the degree expected from the extreme anæmia." Phosphorus was given, and eight days afterwards symptoms of inflammation of the spleen were observed. Six days later the enlargement began to diminish, and the spleen gradually became so small as to be almost covered by the ribs. Meanwhile the patient gained strength and color. No definite account of the condition of the blood is given. When last seen the patient was sick, and ceased attending as an out-patient.

That this was a case of leucocythæmia, as usually defined, the blood showing white corpuscles in a permanent ratio of at least one to twenty, is by no means certain. At all events, the patient's condition when last seen leads us to an unfavorable inference as to his ultimate fate.

Case II.[2] A man aged thirty-seven. Spleen greatly enlarged. Thirty to forty white corpuscles seen in a field. Three months after commencing the use of phosphorus the number of white corpuscles diminished to five or seven in a field, and the spleen began to decrease in size in a somewhat shorter space of time, without signs of inflammation. Three weeks later the man was discharged, with his blood in normal condition, except that the white cells were increased in size, and his spleen greatly reduced. Eighteen months later he died of what was called "rupture of the spleen." The nature of this case is open to

[1] London Practitioner, January, 1875.
[2] London Lancet, July 10, 1875.

doubt (the statement was made last December, before the London Clinical Society, that at no time were there more than twenty white corpuscles seen in a single field) and the termination unsatisfactory.

Case III.[1] A man aged forty-three, whose case was one of well-marked splenic leucocythæmia. After taking phosphorus twenty-seven days a diminution of about one inch in the diameter of the enlarged spleen was noted. One month later the patient died, although a week previous only seventy white corpuscles could be seen in a single field instead of one hundred and fifty, which number had been observed ten months earlier.

A considerable variation in the number of white corpuscles is not uncommon with any or no treatment, and a slight reduction in the size of the spleen has been noted as following simply the application of tincture of iodine. The termination of the case does not speak well for the effects of phosphorus; and how this remedy (which was originally used because its poisonous effects consisted partly in fatty degeneration of the liver, spleen, etc.) can be expected to expend its force on one particular organ and spare the others, it is difficult to conceive. At a recent meeting of the London Clinical Society the possibility of fatty degeneration of the kidneys being produced by its use was mentioned. That it has been used in scores of cases of leucocythæmia and lymphatic anæmia without producing the slightest good is a well-known fact.

The following cases[2] are cited as proving the favorable action of ergotin subcutaneously: —

Case I. A girl with undoubted leucocythæmia was treated with five-grain injections of ergotin on alternate days. The spleen was found to be reduced in size eighteen days after the treatment was commenced. The condition of the blood at this time is not mentioned. Three weeks later the patient died.

Case II. A man aged thirty-two, whose spleen was "not much enlarged," and whose blood showed "eighteen to twenty white corpuscles instead of twelve or fourteen, was treated as Case I., and all symptoms disappeared in seventeen days.

Case I. died three weeks after the reduction was noticed, and Case II. was not one of leucocythæmia.

The few well-authenticated cases of recovery which I have seen mentioned were treated with iron and quinine, either alone or in combination. In Professor Moshler's monograph on leucocythæmia there are two cases given, and one is reported by Dr. Lloyd Roberts in the *British Medical Journal* of November 27, 1869. In the last case the blood presented all the appearances necessary to constitute leucocythæmia, but there was no enlargement of the spleen or of any of the superficial

[1] Canada Lancet, January 1, 1877.

[2] The American Journal of the Medical Sciences, vol. lxix.

glands discovered. In conclusion, the points which this paper would tend to establish are: —

First. That the relative proportion of the white corpuscles may vary considerably without any corresponding change in the patient's general condition.

Second. That a reduction in the size of the spleen in leucocythæmia may be due to the escape of pus (or leucocytes), forming a portion of its contents, into the intestinal canal.

Third. That a reduction in the size of the spleen may take place without any symptoms of a lesion of continuity, and the patient's condition remain unchanged.

Fourth. That the last-mentioned phenomenon is occasionally followed by death a few weeks later.

Fifth. That in the existing state of knowledge of the disease the most rational and safest treatment is that termed "tonic."

RECENT PROGRESS IN PUBLIC HYGIENE.

BY F. W. DRAPER, M. D.

The Nature of Contagium Vivum. — The recent investigations of Professor Tyndall, and the discussions growing therefrom in English and French scientific circles, have given fresh interest to a subject which may be said to be fundamental to the theory and practice of hygiene, inasmuch as it has close relations with the ætiology of a very large class of the diseases which it is the aim of the sanitarian to prevent. Among the latest and most instructive of the contributions to this topic is a paper by Dr. J. Burdon Sanderson, read before the London Society of Medical Officers of Health [1] in January, 1877. Dr. Sanderson states that it is only by the investigation of particular cases, by clinical observations and pathological experiments, that accurate knowledge can be reached concerning the intimate nature of the process of infection. It is neither the organic form nor the molecular constitution of the morbific material that concerns us, but the action which it exercises within living bodies.

Contagium is defined by Dr. Sanderson to be a material which forms part, or which has previously formed part, of the body of a diseased person or animal, with respect to which it is known that if it is inserted into the body of a second healthy person or animal of the same species, the disease of the first will be communicated to the second. Consequently we cannot employ the word contagium without having in our minds the notion of conveyance, of transfer of material, even though the contact is most immediate. This being so, the question of the

[1] Public Health, 1877, page 55.

nature of contagion identifies itself with that of the characters of the material of conveyance. Although the opportunity for investigating these characters has been limited, — glanders, small-pox, and rinderpest being the chief fields of inquiry, — two facts have been determined, namely, (1) that, however invisible contagium may be, whether to the eye or microscope, it always presents itself (whether suspended or diffused, in aqueous and in gaseous media) in the form of concrete particles and never in that of a soluble chemical body or a gas, and (2) that it is distinguished from organized matter in general by possessing the power of resisting those chemical changes to which such matter is usually prone.

The characteristic property of contagium, the power which it possesses of originating a diseased process, is one which it acquires by virtue of its having been a constituent of diseased but living protoplasm. With reference to its actual condition, there are, therefore, two possibilities, namely, (1) that it is still living, and (2) that it has ceased to live. The fact that it has not undergone chemical change affords ground for assuming that it is still living, and that it may have sprung either from diseased tissue itself or from independent organisms in the tissue affected.

An interesting question in immediate relation with these views is with respect to the origin of septic bacteria and the part which they take in the process of putrefaction. The ground which the orthodox biologist holds now, as against the heterodox, is not that every bacterium must have been born of another bacterium — *omne vivum ex ovo* — but that every bacterium must have been born of something which emanated from another bacterium, that something not being assumed to be endowed with structure in the morphological or anatomical sense, but only in the molecular or chemical sense. So far, then, as the morphologist is concerned, germs have quietly given place to things which are ultra-microscopical, — to molecular aggregates occupying a border land between the living and the non-living; and so, analogous with the unformed or unorganized ferments of the human body, the ferments of the stomach, the pancreas, the blood, the saliva, and the liver. Vital physicists, at the present time, regard the question of the molecular changes with which the development of germs is associated as of greater consequence than the essential nature of the germs themselves. Accordingly, the most important investigations are being now directed to the elucidation of the chemical process of putrefaction.

However certain it may be that the initial infection by which a wounded surface begins to go wrong, that is, to become the seat of septic changes in the discharge, and of unhealthy action in newly-forming granulations, consists in the introduction of contaminating material from the atmosphere, this really affords no explanation of the subse-

quent development of the evil, for it is equally certain that those forms of contagium which are most virulent are not derived from primary inflammations, however abundantly the discharges may teem with bacteria. Clinical observation teaches that the virulent forms of infection occur only in association with a general process affecting the whole organism, which we therefore call septicæmia, and that the new inflammations which originate under the influence of this general change (secondary inflammations of serous membranes, of joints, of cellular tissue) yield products which exhibit a virulence and a contagiousness altogether out of relation with those of primary inflammations. Moreover, the bacteria found in malignant inflammations differ so much in form and character from those of ordinary primary inflammations, that with a good microscope it is possible to distinguish the exudation of a malignant peritonitis from that of a primary inflammation of the peritoneum. All that can safely be said, therefore, with our present knowledge of the organic forms (bacteria, etc.) which occur in contagious fluids is that "they are characteristic concomitants of the specific processes with which they are associated."

The Registration of Disease. — Dr. William Squire contributed an interesting paper on this subject at the last meeting of the British Medical Association.[1] He remarks that in the light of what has been accomplished in mortality registration, there is reason to predict that sanitary administration will find in the systematic registration of diseases immense assistance in promoting public health. Disease that does not directly lead to death yet often cripples development, destroys energy, or robs life of its joy and usefulness, would thus be met at its outset and be prevented, repelled, or defeated; for disease, not death, is the foe we are bound to oppose. A registration of all diseases is to be encouraged, the imposition of fines being restricted to those cases only in which it was found that infectious disease had not been reported. Without compulsory powers it would be impossible to make any scheme thoroughly effective. In all cases the responsibility of reporting the existence of infection should rest with the parent or householder. The obligation resting on the physician should be not that of acting in any way as an informant, but only such as would compel a clear, plain, truthful certificate of illness when called upon. Householders apply to the local authority to abate nuisances; they should report the ailments that befall their families. All acute diseases, all infectious diseases, all children's diseases, ought especially to be reported. The acute cases guide to where there is suffering, and where there is most need of health — often to the discovery of infectious illness of which it may be the local sign. The slightest cases of infectious diseases must be known and attended to.

[1] The Practitioner, January, 1877, page 61.

Any disease among children is likely to lead us to some of the causes deteriorating the general health, since children are the most sensitive to insanitary conditions. All the diseases we most wish to prevent are most active and fatal amongst children in the first five years of life; in the next five or ten years, the constitutional or developmental diseases show themselves. These might often be arrested; deficient air-space and much else might be remedied that leads to struma and disease of bones and joints, crippling growth and strength.

The great objection urged to the registration of disease is that it can never be perfectly exhaustive and must vary much in accuracy. The value of the work carried on at the Registrar-General's Department is dependent on its accuracy and completeness. The returns obtained are full and exhaustive for the whole country, and the powers of the government are exerted in their collection. What is necessarily omitted in such returns is more than compensated for by the element of certainty introduced. Without the patience, skill, and care devoted by Dr. William Farr to elicit the value of the facts thus collected, such great results would never have been obtained. This work has required the labor of a life to organize, assiduous and efficient assistance to maintain. Could we hope that the more numerous and less definite health-returns should be as successfully dealt with? Some such assurance is required; but let not the perfection of one system of registration deter or altogether prevent us from attempting another. Registration of sickness could never be perfect, but it has a function of its own in no way dependent on its embracing every form of disease. It would not be a substitute for the register of deaths; it would give useful warning beforehand; but it would only be of full use and value when taken in conjunction with the mortality return. The object is a different one, and our means may be modified towards its attainment.

Similar testimony as to the desirability and practical working of disease registration was given by Dr. Alfred Carpenter in his address on Public Health before the British Medical Association in August, 1876;[1] and by Dr. Francis Bond in an address before the British Social Science Association. In January of the present year, the (British) Society of Medical Officers of Health unanimously resolved "that in the opinion of the society, whenever a case of infectious disease occurs in any house or vessel, it should be the duty of the person in charge of the house or vessel, or of the person in charge of the case, to report the fact to the sanitary authority without delay; and that it should be the duty of every medical practitioner in attendance upon any such case to give immediate information respecting its nature to the occupier or other person responsible for reporting it to the sanitary authority."

In commenting favorably upon the registration of cases of scarlet

[1] British Medical Journal, August 5, 1876. The Sanitary Record, January 20, 1877.

fever in force in this city (Boston) since the beginning of the present year, the *Lancet* takes occasion to remark that the section of our statute compelling physicians to report the existence of any case of infectious disease which may come under his notice deals directly with a difficulty which the English authorities will be speedily called upon to solve.

Treatment of Town Refuse and Sewage. — Professor Ansted, F. R. S., in a paper read before the Society of Arts, March 14, 1877,[1] described the methods lately introduced at Manchester and previously tried at Salford for the disposal of the refuse and sewage of towns. This refuse he explained as consisting of solid and liquid materials, namely: (1) solid excreta, animal refuse from slaughter-houses, decaying animal and vegetable matters collected from markets, house refuse (such as ashes and dry rubbish), and street-sweepings; and (2) urine and house-slops, waste-water from dye-works, breweries, and various manufactures, and waste-water from water-supply and rain. The process recently adopted at Manchester professes to dispose of all these various kinds of refuse, yielding as the results of treatment several perfectly innoxious materials, each having a definite value in the market, and reducing the small balance to a perfectly inert and harmless residuum; the whole operation being effected without involving any nuisance whatever. The method is essentially a combination of the dry-sewage system and combustion. By these means, during the year previous to August 31, 1876, in the city of Manchester, an inland river town of 359,000 inhabitants (nearly the population of Boston), the large quantity of 163,000 tons (500 tons daily) of refuse was disposed of in the manner alluded to. It is intended that the entire town refuse shall be treated in this way ultimately, so that the river Irwell, which has hitherto been made the main sewer of the city, shall be relieved of that unwholesome function.

The process at present in operation is in brief as follows: The household excreta are collected in pails, after the Rochdale plan. The material is deodorized, partly by ashes thrown into the pails in the course of their daily use, partly by a mixture of charcoal (the product of the combustion process) and carbolic acid. The pails are hermetically sealed during their removal from the houses to the works. The contents of these pails, arrived at the town yard, are emptied upon a floor so constructed as to separate the solids from the fluids, which latter fall into a well-hole, whence they are pumped at once into a receptacle connected with apparatus, called a concretor, where the aqueous parts are evaporated. The solid parts of the sewage, consisting of one third fæcal matter and two thirds ashes, are ground up in mills like mortar-mills, with slaughter-house refuse, decayed fish, the concentrated urine obtained from the concretor, and a small quantity of gypsum to fix the ammonia. The produce is a manure without smell, and dry enough to be put into sacks and carried away.

[1] Public Health, March 16, 1877.

The street-sweepings, house refuse and garbage, and general rubbish, are carbonized in furnaces specially adapted for the purpose. The resulting charcoal amounts to upwards of forty per cent. of the weight of the material charred, and is available for deodorizing purposes. Other furnaces (called destructors) are used for the combustion of dry rubbish, and the clinkers which result are ground up with twice their weight of quicklime, and sold profitably for use in mortar. The waste heat from these destructor-furnaces is utilized in the operation of the concretors for evaporating the liquid (urine) portion of the pail contents.

Professor Ansted believes that the method employed is a satisfactory solution of the sewage question in its application to inland towns which cannot discharge their waste directly into the sea. The system requires no chemicals, no large extent of land, no costly apparatus, and no superior intelligence to work it. It checks the cumulative nuisance of polluted streams, and reserves for those streams the office of carrying only waste water and storm water to the ocean.

Another view of this important sanitary question is found in the report of the committee of the English Local Government Board, recently published.[1] Among the propositions advanced by that commission are the following: —

"That the retention for any lengthened period of refuse and excreta in privy cess-pits, or in cess-pools, or at stables, cow-sheds, slaughter-houses, or other places in the midst of towns, must be utterly condemned; and that none of the (so-called) dry-earth or pail systems, or improved privies can be approved, other than as palliatives, because the excreta are liable to be a nuisance during the period of their retention and a cause of nuisance in course of removal. . . . .

"That town sewage can best and most cheaply be disposed of and purified by the process of land irrigation for agricultural purposes, where local conditions are favorable to its application, but that the chemical value of sewage is greatly reduced to the farmer by the fact that it must be disposed of day by day throughout the entire year, and that its volume is generally greatest when it is of the least service to the land.

"That towns situate on the sea-coast, or on tidal estuaries, may be allowed to turn sewage into the sea or estuary, below the line of low water, provided no nuisance is caused, and that such mode of getting rid of sewage may be allowed and justified on the score of economy."

[1] Public Health, December 15, 1876.

PROCEEDINGS OF THE OBSTETRICAL SOCIETY OF BOSTON.

C. W. SWAN, M. D., SECRETARY.

JUNE 10, 1876. *Spurious Pregnancy.* — DR. HOSMER read the case. May 26, 1876, I was called by a message of urgent haste to visit Mrs. G., supposed by herself to be in active labor, with delivery imminent. Her own opinion was fully indorsed by her mother, a woman of considerable experience as a monthly nurse. The case proved to be not one of childbirth, although in its external aspects closely simulating that condition. I make this statement here, thinking that a knowledge of the fact may add some interest to the history which follows : —

The patient is forty-three years of age, of general good health, of level head, of undoubted veracity, in size small among little women, and with a fair amount of experience in matters pertaining to gestation. Her first pregnancy terminated prematurely at six months, in 1860, three years after marriage. In February, 1862, she bore a female child at term. In June, 1863, she had, at term, a male child, which died in two months. In August, 1866, she miscarried at four months, and did the same thing again in June, 1870. Menstruation has always been perfectly regular, sometimes occurring after conception. In August, 1875, during the first half of the month, she passed through an ordinary period in the usual manner, and had no more menstrual manifestation for three months, in November, when it was very slight. Still three months later, in February last, she again noticed a trifling show after a laborious walk.

From August, 1875, she believed herself to be pregnant for the following very natural reasons : In her general condition she was sure of a close resemblance to what she had experienced in former periods of gestation. There was the suppression of the menses, already described. She had an uncomfortable sensitiveness to certain odors ; old aversions were renewed ; without sufficient cause she conceived strong personal dislikes. The mammæ underwent the changes incident to pregnancy, including a deepening in the color of the areolæ ; they remained full and firm until May 12th, when they became softer, but did not lose much of their size. Morning sickness commenced the last week in September, and, though somewhat less intense than on former occasions, lasted, with some interruptions, until the following January. During the first week in this latter month she felt what she supposed to be fœtal motion, and continued to do so until the latter part of April. Abdominal enlargement commenced in September and steadily increased until February, when it attained its maximum. At this time she measured forty-six inches around the waist, her normal circumference being only twenty-three. During what was reckoned as the ninth month, she perceived what she took to be the usual settling down of the gravid uterus. She says that in February her form seemed to undergo a peculiar change, so that the prominence looked as though it were posterior rather than anterior, and she was declared by her friends to be, according to their language, " hind side before." This extraordinary appearance persisted in some degree for a considerable time.

During the winter and spring the patient's face was full, with slight pallor, and there was some headache. For some time there was marked swelling of both thighs on their posterior surfaces. The urine, normal in amount, and examined a few days after my first visit, showed nothing but a very low specific gravity, 1005.

Thus much for preliminaries, and now for some material which makes up the later history of the case.

May 12th. The patient, with a full conviction that her confinement was approaching, felt some uterine pain, on hearing of a puerperal disaster which had occurred in the neighborhood.

May 18th. The pain returned for a short time.

May 21st. Began to flow quite freely, expelling coagula of considerable size, and continued to do so for two days without abatement.

May 24th. Severe pain convinced her that she was in labor, and compelled her to go to bed.

May 25th. Condition of things about the same.

May 26th. Not much sleep for pain. Early in the day water began to escape from the vagina; it was quite clear in color, came at intervals, several ounces at a time, and was supposed to amount to half a pailful in the course of twelve hours. During the entire day there was pain, severe, recurring frequently, bearing down, felt low in the back, and attended with profuse sweating. Occasional hæmorrhage, with small coagula, was also reported, but much less than had existed on the 21st and 22d. At ten P. M. I arrived, and the aspect and motions of the woman, as I saw her in bed, fully confirmed my expectation of finding her in busy labor. Upon making the usual examination, I found the vagina somewhat relaxed and soft, a cervix uteri of normal length, an os that would admit the tip of the finger. No marked enlargement of the body of the uterus could be discovered per vaginam. Upon placing my left hand upon the abdomen I found the same that the internal exploration had revealed, — nothing. The abdomen was absolutely flat, and the fundus uteri could be felt, but not with marked distinctness, in the hypogastrium. The fact of very moderate uterine hæmorrhage was the only positive thing made out. The abdominal fullness, which I cannot doubt existed in the morning, had, by the testimony of the attendants, disappeared in proportion as the liquid had escaped from the vagina.

May 27th. Pain very much diminished, and after this date was not felt. The same may be said of the hæmorrhage, with the additional remark that at no time was there the least fœtor about the vaginal discharge.

May 29th. Both breasts were swollen and painful for the whole day, and during the following week they were the seat of occasional discomfort. Convalescence progressed favorably.

June 7th. I made a careful digital examination of the pelvic organs. I ascertained nothing new, except a moderate anteflexion. It should be explicitly stated, although it is fully implied by the absence in these notes of all allusion to anything of the kind, that, so far as is known, nothing substantial was ever expelled from the uterus, which bore the slightest resemblance to any possible product of conception.

Leaving to the society the discussion of the case, I close with these suggestions: —

(1.) If my apprehension be correct, spurious symptoms may so closely simulate genuine ones as to leave in the average medical mind the most perplexing uncertainty, and establish in the maternal mind a transient certainty of existing pregnancy.

(2.) A fœtus may perish at any period, and yet all parturient action may be postponed until the expiration of nine months from the date of conception. I am not aware that this rule is restricted to cases of intra-uterine gestation.

(3.) The serious accident of extra-uterine fœtation may except the womb from those changes of which it inevitably becomes the seat in normal pregnancy.

Dr. Minot said he was reminded by this paper of a case, an account of which was printed two years ago. A woman had well-marked signs of pregnancy, which disappeared at the end of some eight or ten weeks; the catamenia, however, did not return. At the expiration of nine months from the supposed beginning of pregnancy hæmorrhage, with some pain, occurred, and a small fœtus, perhaps an inch in length, was thrown off from the uterus. He thought it possible that in Dr. Hosmer's case something may have been expelled.

Uterine Lymphangitis and Perimetritis; Cloudy Swelling of the Kidneys. — Dr. Lyman read the case, and remarked, in addition, that there was no swelling, tenderness, etc., of the right knee; no change in the color of the complexion; no vomiting, the patient relishing her food all the time. The tongue was not coated till within the last thirty-six hours, and then it became typhoidal. Dr. Lyman said that if he should again have a similar case to treat he would give very large doses of quinine. In the present case the administration of ten grains twice within a few hours brought the pulse down to 110 and reduced the temperature a degree.

Ovarian Disease; Ovariotomy; Recovery from the Operation; Death from Pulmonary Disease. — Dr. Driver reported the case.

Inversion of the Uterus; Death from Hæmorrhage. — Dr. Abbot reported the case. The patient was a primipara who had been in labor eight or ten hours. Dr. Abbot reached the house at 3.30 P. M., ten minutes after the summons of the messenger, found the patient pulseless, with an inverted uterus between her thighs, the child having been born twenty or twenty-five minutes. The return was accomplished with great ease, and there was no further hæmorrhage, but the patient had flowed very profusely, and the bed was full of clots. Pressure was made over the abdominal aorta, and a lump of ice was introduced within the cavity of the uterus and retained there some time. Raw brandy was given freely, and the patient rallied somewhat, recovering her consciousness. The uterus contracted well. Soon afterwards, however, she sank, and died at five P. M., about an hour and three quarters after the birth of the child. The birth had been sudden, and there was a laceration of the perinæum into the anus, extending up an inch above the sphincter. Everything had followed the child immediately. The nurse had pulled the after-birth

away, but without using extraordinary force; she had probably simply peeled it from the inverted uterus.

Abortion and Retained Placenta. — Dr. Wellington read the case. Mrs. A., aged about thirty-five, miscarried with twins last August, supposing herself to be about two months advanced in pregnancy. There was slight flowing before delivery. The after-birth did not come away at the time, but at intervals of two or three weeks afterwards by piecemeal, and at each time preceded by slight flowing.

On Saturday, April 15th, a three months' fœtus dropped out without pain or flowing. The after-birth was retained. Mrs. Lathe attended her.

I first saw her Wednesday, April 19th. No pain or hæmorrhage since miscarriage. Os open, but nothing could be felt. Ordered fluid extract of ergot.

April 20th. No pain nor flowing.

April 21st. Pain in back to-day, perhaps from ergot. Slight flowing. Uterus as yesterday. Continue ergot. Finger can be passed one and a half inches into uterus, but nothing can be felt.

April 24th. Discharged yesterday a pretty large coagulum, and had headache all day.

April 26th. Very little flowing; no pain. Considers herself well, and protests against further confinement in room.

April 29th. Feeling well; no flowing, but no placenta.

May 12th (thirteen days after miscarriage). Taken yesterday with hæmorrhage and pain; has been comfortable since last visit, with slight vaginal discharge. Placenta can now be felt high up in uterus, but attached at fundus; finger can be passed around it, but cannot detach it without tearing it. Not much flowing. Has had a slight chill.

May 13th. Yesterday afternoon and night had four chills, each worse than its predecessor, at intervals of two or three hours. Reports having been drowsy for three days past. Her last chill was very severe, so much so that her husband, who called me in great haste, insisted that she could not live through another. Removed as much of placenta as could be reached with finger; a portion, however, remained attached to fundus. Ergot and quinine were ordered.

May 14th. No more chills; moderate flow from uterus; some pains about hips; slight headache.

May 15th. Discharge from vagina offensive; a small piece of placenta came away, smelling badly; no more chills.

May 16th. Not much vaginal discharge. Finger can be passed high up into uterus, but nothing can be felt. The patient recovered without further trouble.

Dr. Wellington said that his practice in such cases was always to pull away what he could get hold of.

Dr. Abbot asked how much of the placental mass in proportion to the whole was retained in the case just read.

Dr. Wellington replied that perhaps the larger half was retained.

Dr. Lyman asked what objection there was in this case to the use of the placental forceps.

Dr. Wellington answered that he had no objection to the use of the forceps, but the instrument was not at hand.

Dr. Minot inquired why the retained placental mass should not be removed at once by forceps, after dilatation with a tent, if necessary; and asked if there were not positive danger in leaving it in the uterus?

Dr. Wellington, in answer to a question, said that the pulse was very good, but that the temperature was not taken.

Dr. Lyman said he had seen several cases in which he had been much alarmed by chills occurring after confinement, in which nevertheless no serious result followed.

Dr. Wellington remarked upon the varied significance of chills. A man, a patient of his, was subject every three or four months to very severe chills, followed by a temperature of 105° and a pulse of 130, and these succeeded by sweating, after which he would go about his business. He once had stricture and rupture of the urethra, with which he was quite ill. There was no trouble with micturition to account for the chills.

Dr. Lyman remarked that it was not uncommon for severe chills to occur from indigestion, and to be relieved by brandy and water.

A NEW METHOD FOR CURING RUPTURE.[1]

Dr. Heaton's book will be read with interest by many physicians in this vicinity and elsewhere, for the reason that he has long been known to treat hernia for a radical cure by a method peculiar to himself. It has also been known both here and elsewhere, that some of his cases have terminated in recovery. Sir William Fergusson mentions the fact of having seen a gentleman in London, who had been cured of a reducible crural hernia by the author.[2]

Had it not been for the death of Dr. Heaton's son, himself a physician, in 1868, this volume would probably have been published some years ago. Its appearance at this time, however, is opportune, as many surgeons have come to the conclusion that the hopeful anticipations formerly entertained for Mr. Wood's operation are destined not to be fulfilled.

The work before us is well written, and the author appears to be sincere in his statements. It is based upon experience derived from the treatment of "many hundreds of cases" of hernia, including inguinal, femoral, and umbilical, enteroceles and epiploceles, reducible and irreducible, and extending over a period of more than thirty years.

A brief report of one hundred and forty cases of permanent cures of rupture may be found in an appendix in which the author makes the following remarkable assertions: "The cases published are known to be thoroughly cured, sufficient time having now elapsed to establish that point beyond question. Though not a tithe of my permanent cures, they are enough for my present purpose" (page 173). His "present purpose" is to establish the feasi-

[1] *The Cure of Rupture, Reducible and Irreducible; also of Varicocele and Hydrocele, by New Methods.* By George Heaton, M. D. Arranged and edited by J. Henry Davenport, A. M., M. D., Harv. Boston: Published by H. O. Houghton & Co. New York: Hurd and Houghton. Cambridge: The Riverside Press. 1877.

[2] System of Surgery. Third Edition. London. Pages 738, 739.

bility and safety of the method. Surely any surgeon who can truthfully say that he has permanently cured over a thousand cases of hernia deserves a respectful hearing, and his methods a most thorough trial.

In the opinion of Dr. Heaton, too much inflammation follows the operations of Wood and others, and is the principal cause of their failure. The same objection applies to some of his own earlier operations in which he made use of the essential oils. He soon noticed that those cases in which his operations were followed by the least apparent local effect eventually proved to be the most successful. Acting on this hint he followed up his investigations, and "after eight years of discouraging experiment" finally discovered the process which he has since used with much satisfaction to himself, and which he calls "the method of tendinous irritation."

This method "may be briefly described as consisting of a mild irritation of those portions of fibrous tissue, lying directly in contact with the exterior of the neck of the hernial sac, thickening and consolidating their substance, and effecting a contraction of the openings" (pages 38, 39).

The irritant used in this operation is made by dissolving with the aid of gentle heat fourteen (14) grains of the alcoholic solid extract of white oak bark in half an ounce of Thayer's fluid extract of the same drug.

With an instrument somewhat resembling a hypodermic syringe, about ten minims of this preparation are slowly deposited in such a manner as to moisten all the fibrous tissues in contact with the neck of the sac, including the rings themselves. Very little pain attends or follows the operation. A light truss or firm bandage is immediately applied, and ordered to be worn a longer or shorter time according to the severity of the case.

During the first week after the operation, the patient is usually required to remain in bed. After that time he gradually gets about, and in many cases returns to his business at the end of a fortnight. In the slight cases all mechanical support is removed in six or eight weeks, and the patient is pronounced "cured."

Owing to the anatomical peculiarities of femoral ruptures, they are not as readily cured as the other varieties, but the author claims a sufficient percentage of successful results amply to compensate both patient and surgeon for the operation.

Contrary to one's expectation the above procedure is more successful in umbilical herniæ than in any of the other kinds. The reasons given are "the greater aggregation of fibrous fasciculi which encircle the umbilicus," and the absence of any important organ after birth to hinder a complete closure of the opening. Previous to the injection for the cure of an umbilical hernia the neck of the sac is to be separated from the edges of the aponeurotic opening by pretty forcible taxis, or, this failing, by a subcutaneous dissection.

In actual practice about one third of the cases require a repetition of the operation, and the worst ones may require several before a satisfactory result is obtained.

The above method of treatment is not applicable to irreducible ruptures until the sac has been emptied of its contents. If this object cannot be accomplished by strong and repeated manipulations, Dr. Heaton opens the sac,

separates the adhesions, and replaces the bowel. Should the contents be omental and of large size, he applies a ligature and cuts off the protruding mass. When the patient has recovered from the effects of these procedures, which he is said invariably to do in periods varying from a few days to several months, the operation by injection is resorted to if necessary.

Twenty-nine successful cases are reported to illustrate this mode of treating irreducible hernia. No fatal cases are given for the reason, as the author declares, that he has never met with any.

There is little to be said about the pathology of this method of treatment, as Dr. Heaton has had only one opportunity of making an autopsy on a person who had undergone the operation. His theory of the action of the irritant is as follows: "The operation is subcutaneous, the parts affected are fibrous tissue, and the irritation itself is mild.

"The parts chiefly and immediately affected by the foreign material are, with a single slight exception, fibrous or fibroid tissues, receiving but little or no red blood from the circulation, and supported chiefly by the nutritive juices. The disturbance we excite does not exceed a low grade of irritation, and the moderate amount of lymph thus subcutaneously produced has a strong plastic or organizing tendency. Also, its production is largely insterstitial, thickening the fasciæ and tendons, contracting and consolidating, though not absolutely closing up, the entire fabric of the hernial or inguinal canal. Owing to the mildness of the preparation of quercus alba, the irritation ceases in its earliest stage, and does not increase to a real inflammation, which if it occurred might readily run on to suppuration. Owing, moreover, to the peculiar slowness with which all fibrous tissues when irritated recover, as well as to the powerful plastic tendency of the lymph thus generated, the thickening, contraction, and consolidation which follow the irritation, persist for a most remarkable length of time, so long that for all practical purposes they are permanent or at any rate sufficiently so to enable nature to reëstablish herself and effect a cure of the hernia" (pages 57, 58).

Such is a brief description of some of the most important parts of this book. We shall make few criticisms either upon the work or the methods of treatment therein described. The true value of the latter is to be determined by careful experience, and not upon theoretical grounds.

The author's idea of a "radical cure," as given on page 51, will hardly satisfy many practical surgeons. "It is my usual custom to dismiss patients with the direction to wear the bandage until it is worn out, and then to discard all mechanical support. On seeing them two or three or six months afterwards, I generally find them still continuing the bandage. I then usually cut it away, and if I find, as I almost invariably do, that the desired changes have taken place, I consider the case successful or, as the phrase is, "radically cured." We should not dare to pronounce a hernia permanently cured as early as six months after an operation.

It is to be regretted that the author has not given us more fully the data upon which his "permanent cures" are based, or, in other words, that he has not stated the length of time which each patient was known to have remained well, also whether he was obliged to wear a truss. On a subject of so much importance more definite and exact information is greatly to be desired.

Dr. Heaton has also been peculiarly fortunate in that he has been able in so many instances to open the sac, break or dissect away adhesions, return intestine, or remove large masses of omentum, without having met with a single fatal result.

Should the operations which are advocated so earnestly by this gentleman prove to be as successful in the practice of other surgeons as he claims they have been in his own, they ought to supersede all others known to the profession at the present time, as they are safer, more easily performed, and more successful in their results. We hope they will be thoroughly tried, and that they may stand the test of experience.

A short chapter is devoted to the consideration of varicocele, and another to that of hydrocele. The only peculiarity in the treatment of the former affection is that the wire ligatures are allowed to remain in the scrotum permanently, the ends having been cut off very short. For the radical cure of hydrocele about two grains of red precipitate are applied to the free surface of the tunica vaginalis by the means of a probe passed through a canula.

In closing we may be allowed to say that Dr. Davenport deserves much credit for the commendable manner in which he has done his part of the work. The general appearance of the book is all one could wish. The paper is good, the type clear, and in every way it is worthy of the well-known Riverside Press. G.

MEDICAL EDUCATION AT PHILADELPHIA.

The University of Pennsylvania has at length decided to follow Harvard's example and to adopt the graded course. The details will be found in the letter from our Philadelphia correspondent, which we publish to-day. The younger members of the faculty have long advocated the change, but the older ones have opposed it, and it is evident that this step has not been taken without a very literal counting of the cost. The faculty wish to do right, but to do so as cheaply as possible; thus we find that measures have been taken to avoid a very serious diminution of receipts. The plan is by no means so radically changed as it was at Harvard in 1871, for a year includes only five months, and we see that third year students are to be admitted at half price. We are still ignorant how thorough the examinations are to be at the end of each year, and how strictly proficiency will be demanded before the student is allowed to pass from one class to another. It is on this that it depends whether or not a real advance in medical education will be obtained. We think our Philadelphia friends would have found it better policy, and it certainly would have been more dignified, to have boldly made a radical change and to have trusted to their merits for success. They are, however, entitled to praise for what they have done, and we hope that in a few years the university will stand on a level with Harvard, though the advances constantly made by the latter render this very unlikely, unless the university adopts a more vigorous policy. We hope that in any case, at least one New York school will feel the necessity of following Boston and Philadelphia.

DR. SIMS ON THE DISCOVERY OF ANÆSTHESIA.

As there can be no doubt that the idea that some agent might for a time abolish sensation is very far from a modern one, Dr. Sims's support of the claims of Horace Wells as a discoverer has always struck us as very extraordinary. It appears from his recent pamphlet that Dr. Sims finds himself just now in a very embarrassing position. This avowed supporter of Wells has recently learned that Dr. Long, of Georgia, had given ether for minor operations before Dr. Wells made his memorable failure at Boston. This, if true, of course puts Wells utterly out of the question, but Dr. Sims is apparently too deeply committed to drop him, and is reduced to the necessity of dividing the honor between Long, Wells, Morton, and Jackson. He proposes that the whole profession should ask Congress to appropriate one hundred thousand dollars to be divided between the families of these four gentlemen. It is not improbable that such a motion will be made at the coming meeting of the American Medical Association. That it would have little effect may be considered certain, for Congress is in anything but a "giving vein" at present; but we should be sorry to see the association commit itself to such a policy.

We have repeatedly stated what we believe to be the facts of the case, and we see nothing in Dr. Sims's pamphlet to modify our opinion. It is briefly this: the idea of the possibility of anæsthesia is probably very ancient; various persons have had more or less definite ideas of applying it, but the honor belongs to him who made it a reality, and that merit is Morton's.

MEDICAL NOTES.

— The Vienna papers of April 23d contain a telegram to the effect that Professor Billroth has gone to St. Petersburg. The fact is he went unexpectedly to Kischenew in Roumania, on the Russian border, leaving word with no one as to his destination or length of stay. The supposition is that his mission is in the interest of the Russian hospital service, as Kischenew is a base of operations of the Russian army.

— In a recent breach of promise of marriage case on trial in England, it was testified that the defendant, an old man, had suffered from rheumatism, lumbago, and a number of physical ailments, for which he took five pills a day. During the last thirty years he had taken no less than fifty-four thousand seven hundred and fifty pills.

— The total cost of street-cleansing in Paris, says *The Sanitary Record*, is about 5,000,000f., namely, agents, drivers, and overseers, 260,000f.; implements and disinfectants, 250,000f.; sweeping, 2,920,000f.; removal of snow, ice, and filth, 908,000f.; sprinkling, 450,000f; heating offices and miscellaneous expenses, 80,000f.

— At a recent meeting of the Medico-Chirurgical Society of Edinburgh, the *Edinburgh Medical Journal* mentions that a case of colica pictonum, due to swallowing a lead bullet, was reported. In the discussion which followed, it was remarked by Dr. Gillespie that many surgeons had seen instances where

half-pence and pence were swallowed without harm. He himself had seen two such, and there was no reason why copper should not prove fatal as well as lead. The new way to get lead-poisoning was by drinking soda-water. He had lately read a case in the *Medical Gazette*, where a tailor got it by putting his measure, which was covered with enamel and white lead, into his mouth. Probably the action of no poison had been more investigated than that of lead, and the paper was a valuable addition to its literature.

— The *Horticultural Gazette* of Nicaragua, says *L'Union Médicale*, publishes some statements regarding a plant of the family of the *Phytolaccaceæ* which grows in that country, and possesses electro-magnetic properties. When one touches a twig of the plant the hand receives as vivid a shock as from a Rumkorff battery. The reporter, surprised at the phenomenon, made some experiments with a small compass. Seven or eight paces off the influence of the plant made itself felt. The deviation of the compass-needle was in proportion to the distance; the nearer it was brought the more marked the movements became, and when the instrument was placed in the middle of the bush the movements were changed into a rapid rotation. The subjacent soil did not contain any iron or other magnetic mineral. There was not any doubt that the electric quality resided in the plant itself. The intensity of the phenomenon varied with the time of day. At night it was scarcely perceptible; at two o'clock P. M., it attained its maximum. During a thunder-storm its power was increased, but when it rained the plant faded. The reporter has never seen birds perch nor insects light upon the *Phytolacca electrica*.

LETTER FROM PHILADELPHIA.

Messrs. Editors, — The grist is ground, the schools dismissed, the diplomas delivered. The only remarkable incident in the various commencements this year was the unusually large number of graduates from the Jefferson Medical College, where the winter class numbered over five hundred men, the graduate list amounting to one hundred and ninety-eight.

The whole number of graduates from the various schools has this year been thus divided: —

The Philadelphia Dental College graduated 67; Pennsylvania Dental College, 35; Medical Department of University, 121; Jefferson Medical College, 198; Hahneman College, 50; Women's College, 15; College of Pharmacy, 88.

On days preceding the commencement exercises the alumni associations of the two regular male schools held interesting meetings. At the meeting of the Jefferson alumni Dr. W. B. Atkinson was instituted orator for this year in place of the appointee, Dr. N. R. Smith, of Baltimore, who was detained by illness. Regret was expressed at the failure to obtain for the college from the state legislature the sum of $100,000.

Graduates of the first (1826) class were introduced to the alumni. A resolution was adopted authorizing the executive committee to notify all graduates of the college who may be in good standing in any state or county asso-

ciation that they are elected members of the alumni association. Prof. S. D. Gross was elected president of the association for the coming twelve months. Professor Gross then said that he had attended his first course of lectures in 1826, and had received his degree in 1828. He had lived many years. His life in the main had been a pleasant one, upon which he could not look back without satisfaction. In the evening Dr. Atkinson delivered an address upon Medical Organizations and their Value.

On the following day the commencement exercises of the graduating class of the school were held in the Academy of Music. There was the usually crowded house, the mounds of flowers, and more practical gifts of books and instruments, the fine music, and the customary bestowment of diplomas. Eight valuable prizes were given to successful competitors. An eloquent and finely delivered valedictory by Prof. J. B. Biddle terminated the pleasant occasion. Among the one hundred and ninety-eight graduates were three from Massachusetts.

On the afternoon of the same day the alumni association of the medical department of the University of Pennsylvania met in the hall of the College of Physicians, Vice-President Dr. John L. Atlee presiding. Dr. Edward Hartshorn, chairman of the executive committee, made allusion to the alumni prizes and their advantages as a stimulus to exertion on part of the students. He expressed the hope that funds necessary to increase the number of the prizes could soon be raised. It had been urged as an objection to these prizes that students would employ in perfecting their essays much valuable time which should be given to the preparation for examination; but the manifest improvement in all branches had shown this to be a false notion. At the conclusion of the business meeting Dr. J. J. Woodward, U. S. A., delivered an address on Dysentery and Bacteria.

On the following Monday the commencement exercises were held at the Academy of Music. The ceremonies were similar to those described in connection with the Jefferson school. The audience filled every nook of the immense house. Diplomas were presented to one hundred and twenty-one graduates; prizes were given to several, others were mentioned as worthy of the notice of distinguished merit, and the valedictory was pronounced by Prof. Joseph Leidy. As usual, flowers in profusion were given to the departing class. This is a pleasant custom. It contributes to the enjoyment both of the giver and receiver, but it strikes one as being an almost thoughtless manner of expressing interest in the graduates. These young men, the majority of them, after securing their diplomas leave for homes which lie from fifty to one thousand miles from Philadelphia. The flowers, beautiful as they are, must either be left behind or fade long before their owners reach home.

It cannot be denied that these floral gifts beautify the stage by converting it into a conservatory; but it would be far more sensible and practical to put their cost into books and instruments which many of the graduates are too poor to buy for themselves. Such gifts would indicate a thoughtful interest in the young doctors, and I am glad to say that a certain proportion of the presents take this form, but this proportion is far too small.

The annual report of the Philadelphia Board of Health shows that the

number of deaths during the year 1876 was 18,892, an increase of 1087 over the returns for 1875. Of these 9848 were males, 9044 females; adults 9556, children, 9336. There were 18,695 births, or 762 more than in 1875. The largest number of deaths in one week was 854, and occurred between July 8th and 15th, during the heated term.

Professor Rand recently resigned the chair of chemistry in the Jefferson Medical College, and Professor Robert E. Rogers, late of the faculty of the Medical School of the University of Pennsylvania has been elected to the vacancy thus created. Professor Rogers has occupied a similar chair in the university school for the past twenty-five years. He is known as an excellent lecturer, and recently has edited the reprint of Lehman's Physiological Chemistry. The removal of Professor Rogers from one school to the other is, if we may judge by opinions freely expressed in medical circles, a cause of congratulation in both institutions. Primarily, because Dr. Rand, with unyielding firmness, clung to the old system of notation, and even went so far as to defend in print his first love, and express his opinions touching the modern unitary system with a vigor which made it clear that he considered it at least superfluous, while Professor Rogers, I am told, will use the unitary system of notation in his lectures at the Jefferson school. This, of course, is a progressive step so far as the latter school is concerned. On the other hand, Professor Rogers was not in entire harmony with all the members of the faculty of the university school. This lack of unity related to the discussions which have been rife of late in regard to a change in the plan of study now pursued at the university. The younger teachers of this school are pushing this matter with all the influence they have. They have the sympathy of some of the trustees, and sooner or later the Harvard plan of study will be adopted in the university. Professor Rogers has systematically opposed any change in the time-honored, but not otherwise honored, hot-house, cramming system of education, and he must find it more agreeable to be one of a faculty which is nearly or wholly a unit in support of the old plan of study. A letter to the *Evening Telegraph* of this city somewhat hotly charges the editor of that journal with injustice because he had intimated, in an editorial suggested by the election of Professor Rogers, that those university professors who opposed reform in their educational system were led to do so by hyperæsthesia of the pocket nerve. The writer also denies that the agitation of the question of reform in medical schools had anything whatsoever to do with the change of chairs on the part of Professor Rogers. In regard to the first assertion, those who stand on the inner side of certain circles say there seems to be no other conceivable reason for this opposition to reform. In regard to the second they are equally skeptical, because of certain events which need no mention. Irrespective of all these questions, however, Professor Rogers has been elected to a chair which is worth considerably more than the chair he has left. If he were influenced by that feature, no reasonable being will disagree with him.

It cannot, however, be denied that Professor Rogers and the clinical professors at the university (in whose veins runs the younger blood of the faculty) wear different colors. The *Telegraph* of this evening replies to the above-mentioned communication, and clears its skirts of the charge of injus-

tice, closing with these telling words: "The plan [of reform] looks eventually to ample endowment of the chairs with such funds as will attract to Philadelphia the first quality of scientific ability. But everything must have a beginning. Opinion must be made, interest in the new plan must be aroused, at least among those who, it is hoped, will give of their wealth to a scheme altogether elevating and noble. The university is doing nothing more at present than seeking to make this sentiment and inducing it to take practical shape. Its classes next winter will be formed on the old plan, and must continue to be until the chairs are endowed. The ground is being broken — that is all. The need is seen — the rest must come. If it does not, the glory of Philadelphia as the centre of medical education must go. No doubt about that. With a diploma issued at Harvard showing on its face that its holder is a thoroughly trained man of science, and with one from Philadelphia put out in the old, familiar way, and meaning just nothing at all compared with that of Harvard, all our hundred years' start cannot save us, and we must go to the rear. Shall we do so?" I give this as a specimen of public sentiment. The schools which refuse to reform their educational plan may, probably will, thrive for a time, but sooner or later reform they must or take second rank, and thus terribly discount the value of their diplomas. Even this may not influence them, for the majority of diplomas go out of the city into districts of country in which the mere possession of a diploma settles all questions, and such districts will always supply an abundance of students for schools whose course is short and easy.

The chair of physiology at the university is also growing cool for lack of an incumbent, in the present instance a want, I believe, not easy to supply. In the Women's College the chairs of anatomy and of theory and practice are looking for occupants. I may also add that Dr. John Neill has resigned his position as surgeon to the University Hospital. Imagine, then, the amount of canvassing now going on. Dr. Adinell Hewson has resigned his post as one of the surgeons to the Pennsylvania Hospital, and Dr. D. Hayes Agnew has been elected in his place.

The corps of lecturers in the summer school of the university has recently been much enlarged. Fourteen special subjects occupy as many lecturers, besides botany and hygiene, which are taught by members of the auxiliary faculty. No change has been made in the summer plan of the Jefferson school. The staff has been appointed to the new Jefferson College Hospital, but no one seems to know when the building will be inaugurated. By some abominable filibustering at Harrisburg, the bill for the promised $100,000 appropriation to this institution, besides many other necessary appropriations, was strangled. Hence no funds can be procured before next winter. The hospital, however, may be opened in spite of this misfortune. But it cannot be run without money.

A new variety of aphasia recently developed itself at the hands of a medical neighbor of mine. His patient, a quaint old Milesian, when asked what might be his ailment, replied, "Doctor, I can't shpake me wurruds." "Can't speak your words! Why! you are talking now." "But, doctor, I can't shpake me wurruds." Not to continue a useless argument, the doctor said:

"Come, let's see what words you can't speak. For instance — horse. Can you speak that word?" The patient, dropping his voice to a low, confidential tone, gave this most delightful answer: "Ah, doctor, harse is one of the wurruds I can't shpake!" The man really had a certain degree of aphasia, but it evidently did not extend to the word "harse."

The quotations which I made from the *Evening Telegraph*, to the effect that no change in the university plan of study would take place this year, I did not doubt were authentic. It seems they were not; for within forty-eight hours after publication of the quoted statements, the trustees of the university voted to make an entire change in the curriculum of the medical department. The new plan will go into effect next fall, and comprises (*a*) a three years' course; (*b*) a graded course of study; (*c*) yearly examinations; (*d*) a fee of $100 for the third year, to which heretofore second year men have been admitted gratuitously; (*e*) no preliminary examination; (*f*) the decision that the status of students who are already in the school will not be affected by the change.

This arrangement, as you will perceive, is a modification of the Harvard plan, but it is only an entering wedge. I am assured by one of the most active of the trustees that the intention is eventually to make their medical curriculum even more stringent than the Harvard. To reach this modified result has cost the friends of higher education a hard fight, and but for the recent resignation of Professor Rogers the change could not have been thus early accomplished. The older members of the faculty who objected to the new plan because of its possible effect upon their incomes have been guaranteed a satisfactory yearly amount. This has been assured by means of a very generous guarantee fund, which has been raised within five days among friends of the school, twenty thousand being a direct gift. One of the medical chairs will be endowed before the close of this year. Another will be endowed next year, and the trustees believe that when three or four endowments have been effected there will be no further difficulty as to the remaining chairs. The resolution of the trustees came suddenly upon those outside the immediate atmosphere of the active workers, but this is good, cheering news, and, as you can imagine, the friends of higher education are jubilant. H. O.

PHILADELPHIA, *May*, 1877.

LETTER FROM PARIS.

MESSRS. EDITORS, — It may possibly be known to some of your readers that, so long as twenty-five years ago, Dr. Burg, of Paris, called attention to the striking effects which, as he claimed, followed the application to the skin of small disks of metal of various kinds. These experiments have recently been repeated by Professor Charcot, at the Salpêtrière, oddly enough the scene of Dr. Burg's original investigations, and the results appear to have completely verified the latter's strange statements, at least so far as the cure of hemianæsthesia is concerned, the only point which has thus far been examined.

The matter has now begun to attract the attention of the journals, and perhaps of yours among the rest. If not, a few words on the subject may be of in-

terest, although it is as yet uncertain whether the discoveries are to be of therapeutic significance, or whether they are destined to be ranked with those of Mesmer and Braid.

Briefly summed up, the principal facts which have been recently verified or discovered are the following: —

The hemi-anæsthesia of hysterical patients, even if absolutely complete and involving the special senses, may be removed or greatly lessened by the application of one or a number of isolated disks of metal to any part of the anæsthetic region for twenty or thirty minutes. It is not indifferent what metal is chosen, but the selection has to be made experimentally. Copper or brass generally work the best, then come steel, gold, and zinc. The fore-arm is the most convenient place for the application of the disks, but even the wearing of a metal thimble has been seen to produce temporarily the effects indicated.

The effects in question are first and most strongly marked in the immediate neighborhood of and especially above the metallic disk.

In proportion as the affected side regains its sensitiveness, the corresponding parts of the opposite side become anæsthetic, at least to some extent.

The condition thus provoked may persist, with gradually diminishing intensity, through one or two days.

With the exception of the last-mentioned change, which was not sought for, these same phenomena were observed also in the case of two patients who were not hysterical, the hemi-anæsthesia seeming to be associated with an actual organic lesion of the brain.

A delicate galvanometer having been connected with two of these bits of metal (whose surfaces are of course not perfectly homogeneous), its needle was found to deviate ten to twenty degrees, and when currents of galvanic electricity of such strength as to cause a similar deviation (as furnished, for example, by one element) were employed in the same manner, the same general results were obtained.

The reasons given for not classing these phenomena among the freaks of hysteria are that they are of too complicated and unusual a nature to have been imagined or feigned at the outset; that they are essentially the same in different individuals, and were obtained also in two cases of hemi-anæsthesia believed to be of organic origin.

It may be mentioned that it is well known that strong currents of electricity will sometimes remove the anæsthesia in both these classes of cases.

It is also noticeable that though usually in these cases of hemi-anæsthesia the wound made by a sharp pin thrust through a fold of skin scarcely yields a drop of blood, yet after the application of the metals the blood flows more readily.

The experiments are shortly to be made the subject of a report to the Société de Biologie. It is, of course, needless to say that all the precautions were adopted which suggested themselves as likely to prevent deception.

Yours truly, JAMES J. PUTNAM.

March, 1877.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING MAY 19, 1877.

	Estimated Population, July 1, 1877.	Total Mortality for the Week.	Annual Death-Rate per 1000 for the Week.	Death-Rate for the Year 1876.
New York	1,077,228	* 480	23.17	27.46
Philadelphia	850,856	352	21.51	22.88
Brooklyn	527,830	214	21.08	24.31
Chicago	420,000	143	17.70	20.41
Boston	363,940	143	20.43	23.39
Providence	103,000	38	19.18	18.34
Worcester	52,977	13	12.76	22.00
Lowell	53,678	20	19.37	22.21
Cambridge	51,572	13	13.11	20.54
Fall River	50,370	12	12.39	22.04
Lawrence	37,626	10	13.82	23.32
Lynn	34,524	10	15.06	21.37
Springfield	32,976	13	20.49	19.69
Salem	26,739	13	25.32	23.57

Boston Society for Medical Observation. — The next regular meeting of the society will be held on Monday evening, June 4th, at eight o'clock, at its rooms, 36 Temple Place. Dr. J. G. Blake will read a paper upon Unusual Cases in Private Practice.

Dr. Samuel Howe has been appointed assistant visiting physician to the Boston Lying-in Hospital.

The American Neurological Association will hold its third annual meeting in New York on June 6th, 7th, and 8th.

Omission. — In our report from the Boston City Hospital in the last number it should have been mentioned that the cases occurred in the service of Dr. Hall Curtis and were reported by Dr. C. C. Sheldon.

Books and Pamphlets Received. — How to Use the Ophthalmoscope. By Edgar A. Browne, Surgeon to the Liverpool Eye and Ear Infirmary, etc. Philadelphia: Henry C. Lea. 1877.

Thirty-First Announcement of Starling Medical College. Columbus, Ohio. 1877.

Two Cases of Morphœa. On the Nomenclature and Classification of Diseases of the Skin. Both by Duncan Bulkley, M. D. New York: G. P. Putnam's Sons. 1877.

Thirty-Sixth Annual Announcement of the St. Louis Medical College. 1877.

The Germ Theory applied to the Explanation of the Phenomena of Disease. The Specific Fevers. By T. Maclagan, M. D. London: Macmillan & Co. 1876. (From A. Williams & Co.)

Transactions of the Pathological Society of Philadelphia. Vol. VI. Edited by James Tyson, M. D. 1877. (From A. Williams & Co.)

Transactions of the State Medical Society of Arkansas. 1877.

An Introduction to Practical Histology. By George Thin, M. D. London: Baillière, Tindall, & Cox. 1877. (From the Publishers.)

Extracts from Testimony on the State Reform School at Westborough.

General Laws and Resolves passed by the Legislature of Massachusetts during the Session of 1877.